

### Installation Instructions

#### Description

The QuickNet-RK repair kit is for repairing heating cable that is damaged during installation of the QuickNet mat. The kit includes jumper wires to bridge the heating element after the damaged section is removed. The kit contents are sufficient to repair one damaged section up to 5 inches long. If more than 5 inches of cable has been damaged, the mat must be replaced.

#### Tools Required

- Wire Strippers 16-26 AWG
- Gloves
- Scissors
- Heat gun (1000°F air temp with heat deflector required)
- Multimeter (capable of 200K ohms)

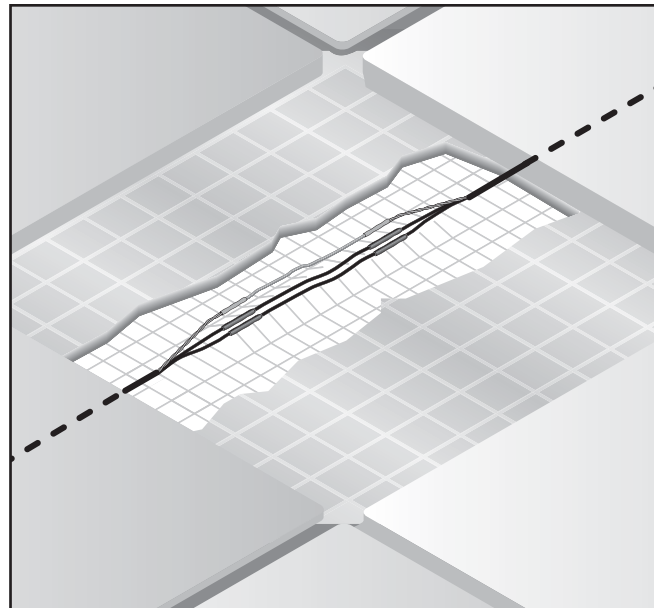
#### Other Required Materials

- QuickNet System Installation Manual (H57704)
- QuickStat Thermostat Installation and Operation Manual (H57725)

#### Optional Tile Removal Tools

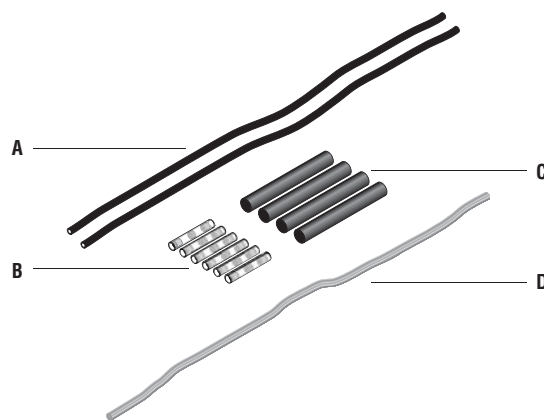
- Grout removal tool
- Hammer

#### Approvals



#### Kit Contents:

Item	Qty	Description
A	2	Jumper wires (blue)
B	6	SolderSleeve® connectors
C	4	Heat-shrinkable tubing
D	1	Ground wire (non-insulated)



### WARRANTY & APPROVALS DISCLAIMER

The QuickNet-RK Repair Kit is for making minor repairs to the QuickNet heating cable if it is damaged during or after installation. Because the condition of the damaged mat, site conditions and installer capability can vary,

Tyco Thermal Controls does not warrant the repair or warrant that the repaired floor warming system will function properly. Use of this kit voids the warranty of the repaired portion of the heating cable. Repairs

should only be attempted by a qualified electrician or experienced craftsmen familiar with good electrical practice and techniques for tile installation and removal. Contact Tyco Thermal Controls for assistance.

#### ⚠ WARNING:

**WARNING: Shock and Fire Hazard.**

If the QuickNet mat is damaged or not installed properly, fire or shock could occur resulting in serious personal injuries or damage to property. You must carefully follow the warnings and instructions contained in these instructions and the QuickNet Installation Manual (H57704). Contact Tyco Thermal Controls for assistance.

- The QuickStat thermostat must be used. It has a ground-fault circuit interrupter (GFCI) to prevent electric shock.
- The QuickNet-RK repair kit must be installed by qualified personnel familiar with generally accepted construction techniques and safe electrical practices. The installation must comply with all

national and local electrical codes. If you are unfamiliar with these requirements, contact a licensed electrician.

- Electric wiring and the heating mat are installed in the floor. Be sure that the floor is not penetrated by nails, screws, or similar devices that can cause damage on first installation or during subsequent floor repairs in the future.
- Do not use this Repair Kit to splice different QuickNet mats together. It is designed only to repair a damaged section of heating cable in a single mat.
- The QuickNet heating cable cannot be cut to length, crossed over itself, or installed closer than the spacing in the mat.

#### ⚠ INSTALLATION GUIDELINES:

- QuickNet mats can only be installed beneath ceramic tile or natural stone surfaces. Do not install beneath wooden, carpeted, linoleum, or other type floors.
- Do not step directly on or damage the heating cable during installation.
- Do not install the QuickNet mat across expansion joints.
- Follow the manufacturer's instructions for installing tiles, scratch coat, thin-set mortar, or quick drying mortar beds.
- Do not allow heating cable, cold lead, or floor temperature sensor to cross over themselves or each other.

## QuickNet-RK Installation Instructions

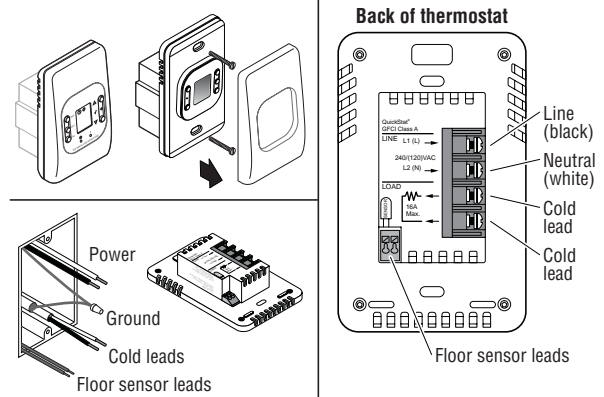
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- Turn off the power to the QuickNet floor warming system at the circuit breaker before starting any repair work.



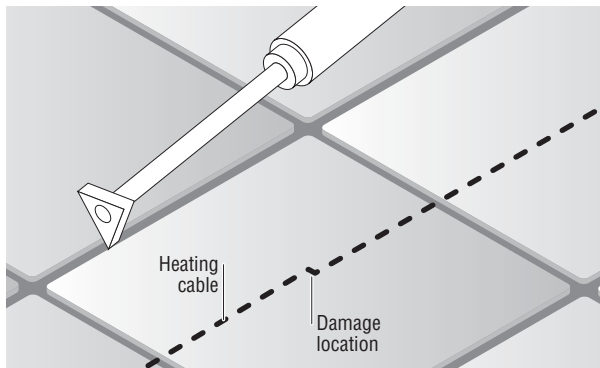
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- Disconnect the QuickNet cold leads, power wires and floor sensor leads from the QuickStat Thermostat. This provides additional safety and allows for the testing required in later steps.



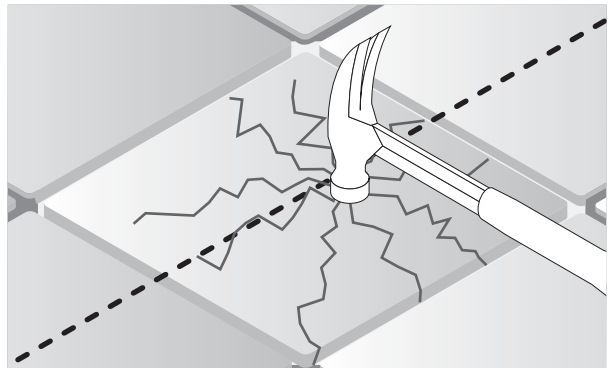
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- If the damaged section has not been installed in mortar, proceed to Step 7.
- Remove the tile above the damaged section by removing the grout with a removal tool, being careful not to further damage the heating cable. Do not use a knife or chisel.



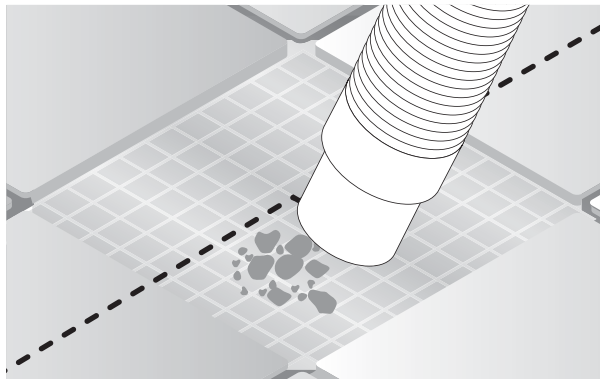
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- Once the grout is removed, carefully break away the tile using a hammer.



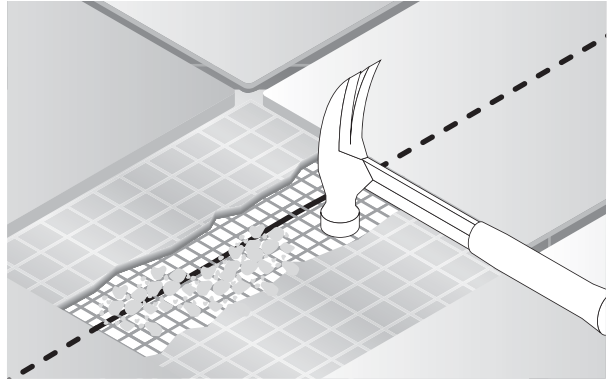
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- Remove any broken tile and vacuum other debris from the exposed surface to locate the damaged heating cable section.



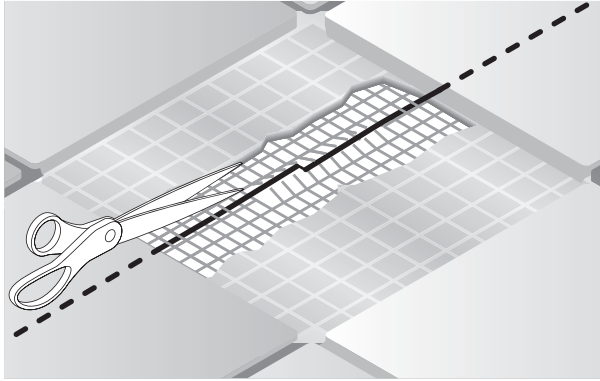
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- To expose the damaged section, break mortar away from the heating cable with the hammer, making sure not to damage the cable.



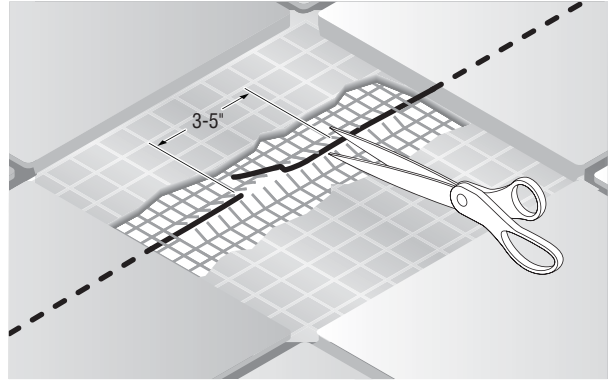
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- Remove sufficient mortar to expose 4-5 inches of heating cable on either side of the damage. Using scissors cut the mesh from the cable to provide room to install the splice.



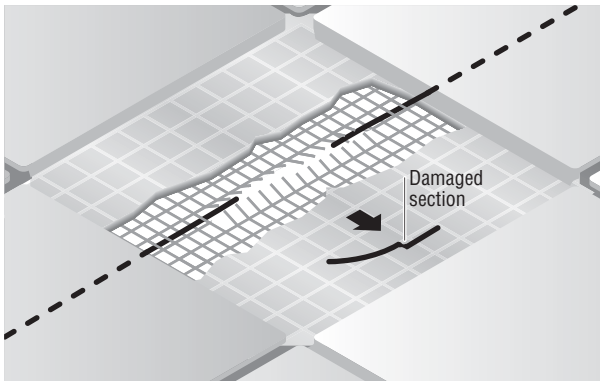
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- Remove at least 3 inches, and up to 5 inches of heating cable including the damaged section leaving two protruding ends of heating cable. If more than 5" of cable has been damaged, the mat must be replaced.



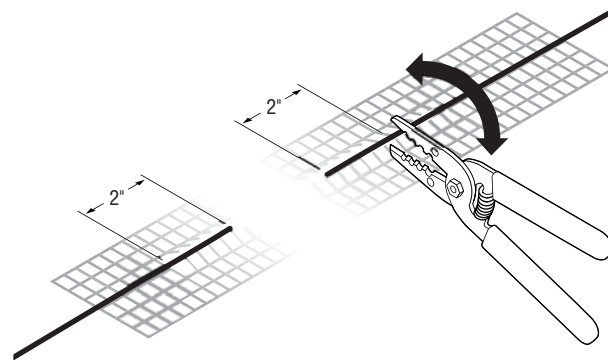
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- Remove the damaged section.



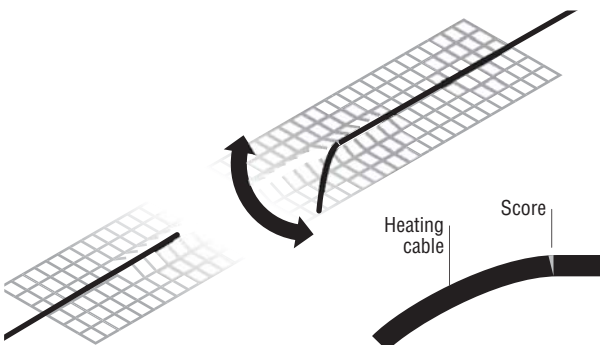
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- Using the 16 AWG opening on the wire strippers carefully score the outer jacket, 2 inches from the end of both exposed heating cable ends.



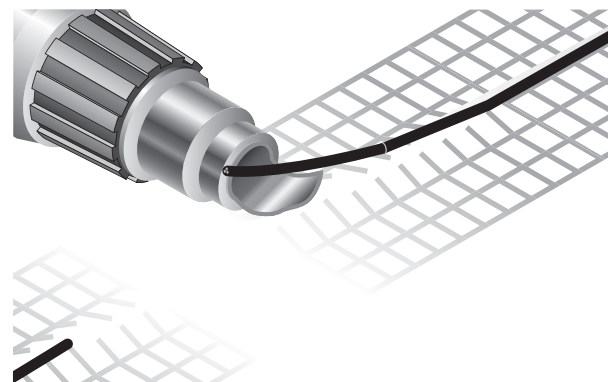
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- Flex the cable to break the insulation at the score.



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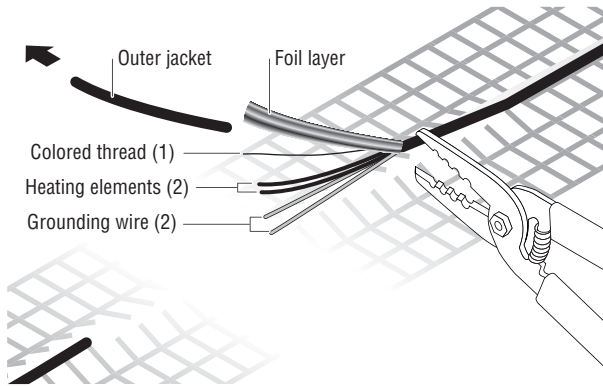
- Using the high setting on the heat gun, heat the jacket to loosen the insulation.



## QuickNet-RK Installation Instructions

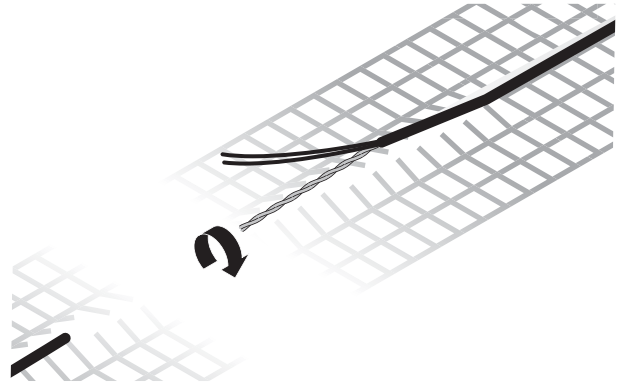
13

- While the cable is still hot, use strippers to remove the outer jacket and foil layer to expose the heating elements.
- Cut off the colored thread.



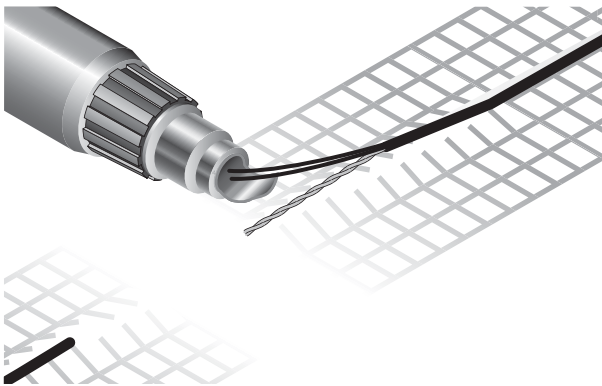
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- Twist two ground wires together.



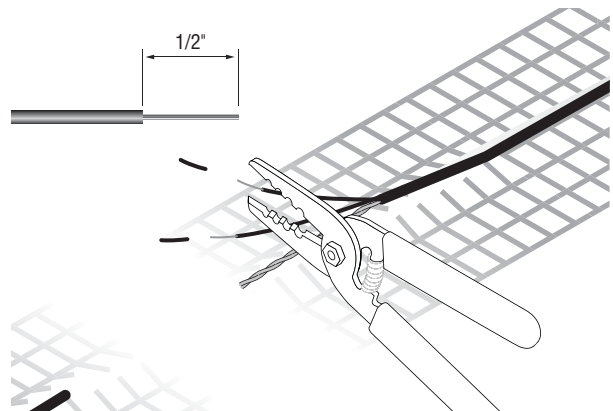
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- Heat only 1/2" of the insulated ends of the heating elements to soften.



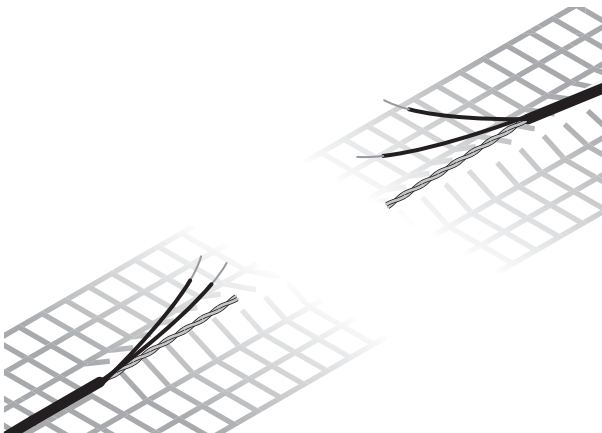
16

- While the wires are still hot, use the wire strippers to remove 1/2" of the outer insulation to expose the heating elements.



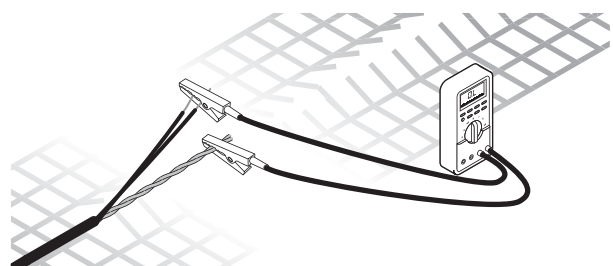
17

- Repeat steps 9 - 15 for other exposed heating cable end.



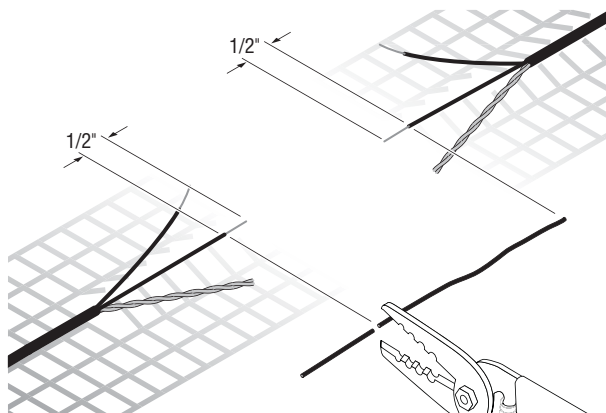
18

- Test both ends of the heating cable using this insulation resistance test to verify there is not further damage to the heating cable.
1. Connect the ground wire to the black lead and both power wires to the red lead of the multimeter.
  2. Make sure the meter reads 'Open' or 'OL'. If you get a different reading, contact Tyco Thermal Controls at 800-545-6258.
  3. Record these readings on the Commissioning Record (page 8).



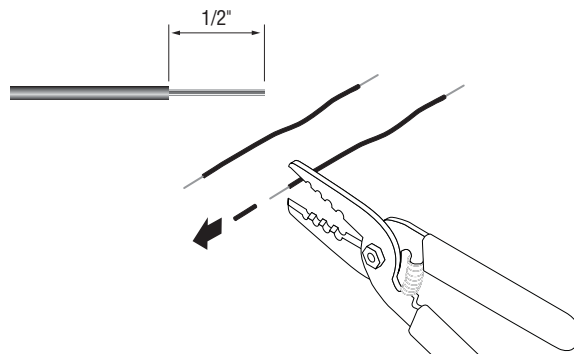
19

- Cut jumper wires to length allowing for 1/2" overlap on each end as shown.



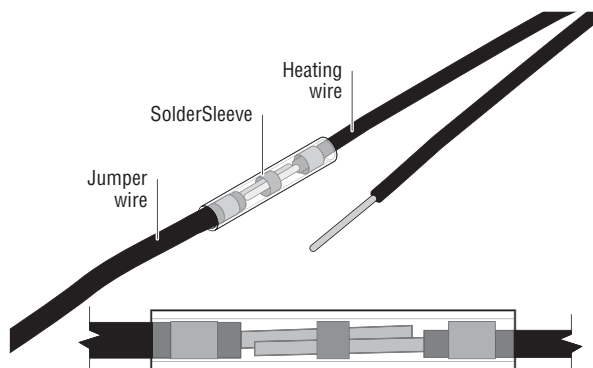
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- Strip 1/2" of insulation off both ends of each jumper wire.



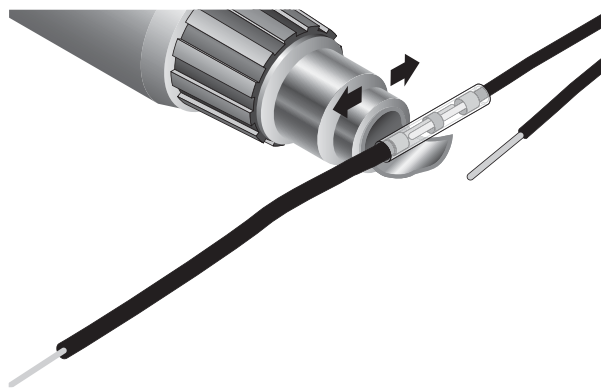
21

- Slide SolderSleeve connector onto one heating wire.
- Insert jumper wire into SolderSleeve connector.



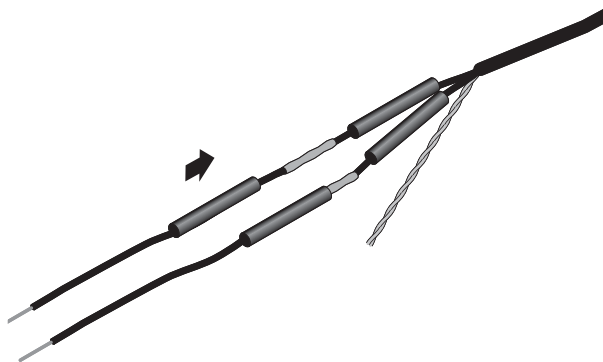
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- Heat SolderSleeve connectors until solder and adhesive have melted. (The colored solder ring will turn clear when melted.)
- Allow to cool, then repeat for second jumper wire.



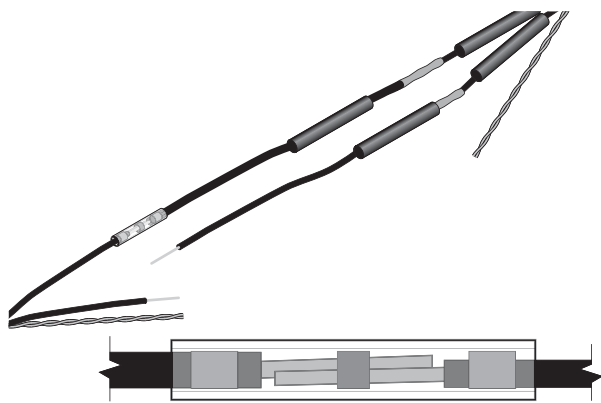
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- Slide two heat-shrinkable tubes onto each jumper wire.



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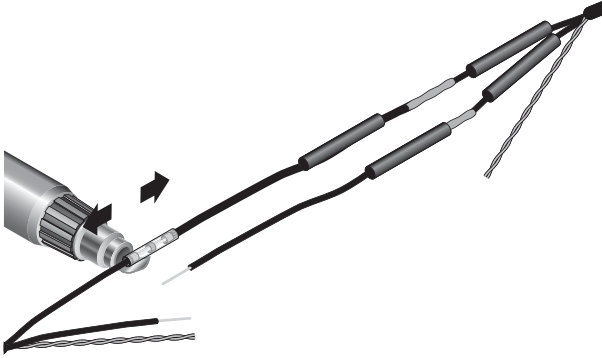
- Slide SolderSleeve connector onto one heating wire.
- Insert jumper wire into SolderSleeve connector.



## QuickNet-RK Installation Instructions

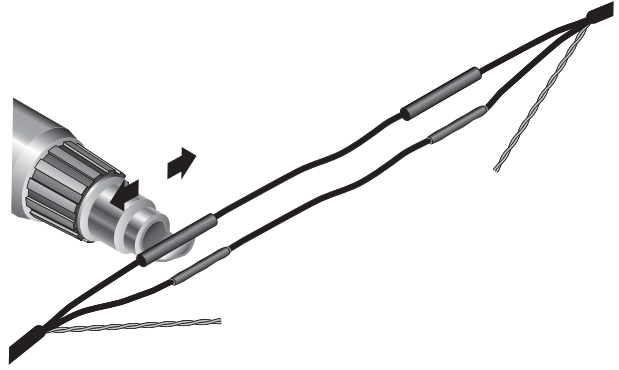
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- Heat SolderSleeve connectors until solder and adhesive have melted.
- Allow to cool, then repeat for second jumper wire.



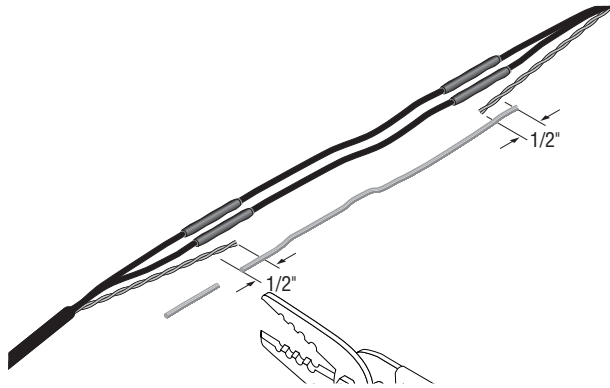
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- Center the 4 black heat-shrinkable tubes over the installed SolderSleeve connectors.
- Using the heat gun, shrink in place.



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- Cut ground jumper to length, allowing 1/2" overlap on each end of twisted grounding wire.



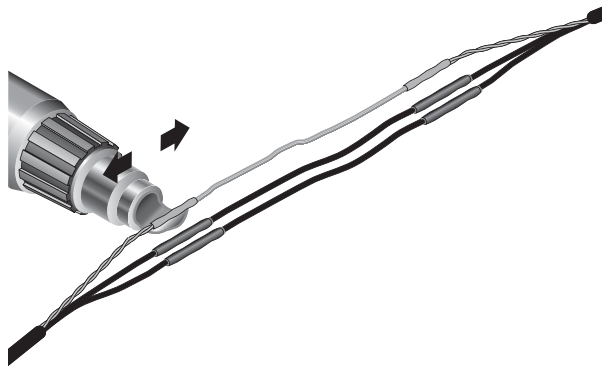
28

- Slide SolderSleeve connectors onto ground wires and jumper.



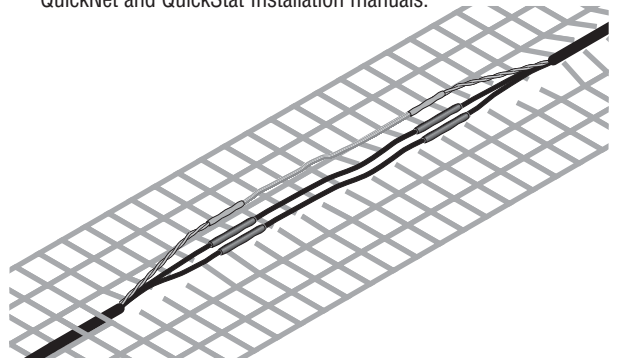
29

- Heat SolderSleeve connectors until solder has melted.



30

- Before and after re-installing the mortar and tile run the three standard QuickNet commissioning tests from the cold lead wire at the QuickStat Thermostat and record the results in the commissioning log.
- Continue the QuickNet System installation following the QuickNet and QuickStat Installation manuals.



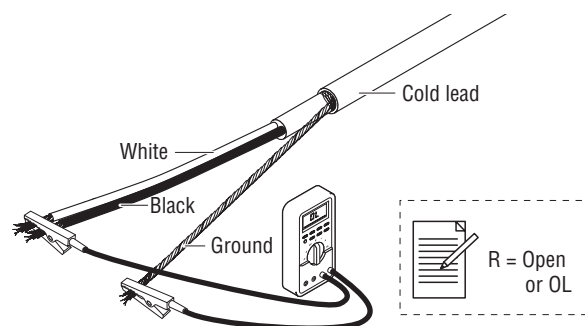


Once the QuickNet splice is completed, conduct the following three commissioning tests on this page and record the values on the QuickNet-RK Commissioning Record (on page 8). Retain these readings with the original QuickNet Commissioning Record.

## Testing Procedure

### 1 Insulation Resistance Test

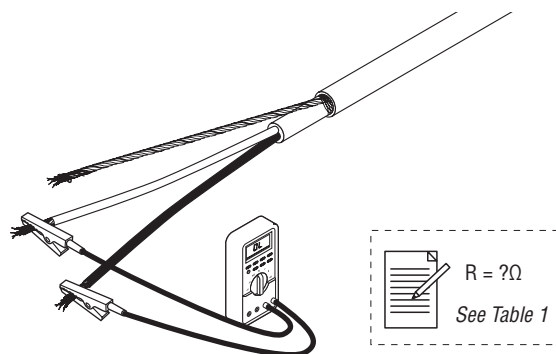
This test ensures that the insulating jackets of the mat are not damaged. A low value indicates the mat has been damaged and must be replaced.



1. Connect the ground wire to the black lead and both power wires to the red lead of the multimeter.
2. Set your multimeter to the **200 K ohm** range. Make sure the meter reads 'Open' or 'OL'. If you get a different reading, contact Tyco Thermal Controls at 800-545-6258.
3. Record these readings on the Commissioning Record (page 8).

### 2 Heating Cable Resistance Test

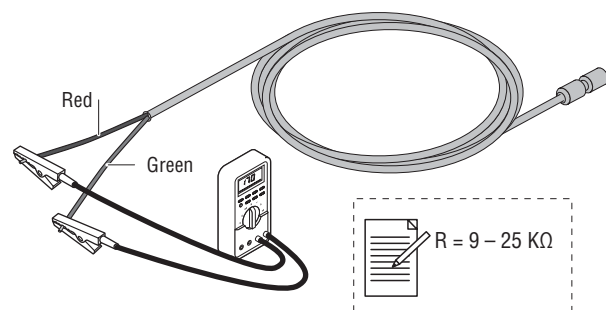
This test measures the resistance of the mat and is used to determine circuit integrity.



1. Set your multimeter to the **200 ohm** range.
2. Connect the multimeter leads to the black and white cold lead wires.
3. Compare this resistance reading to the resistance specified in the QuickNet Resistance Table below. The value should be within  $\pm 10\%$ . If you get a different reading, contact Tyco Thermal Controls at 800-545-6258.
4. Record these readings on the Commissioning Record (page 8).

### 3 Sensor Resistance Test

This test measures the resistance of the floor sensor and is used to verify the sensor integrity.



1. Set your multimeter to the **200 K ohm** range.
2. Connect the multimeter leads to the red and green lead wires.
3. Make sure the meter reads between 9–25 K $\Omega$ . If you get a different reading, contact Tyco Thermal Controls at 800-545-6258.
4. Record these readings on the Commissioning Record (page 8).

**QuickNet Mat Resistance Table**  
120 V QuickNet with thermostat

Catalog Number	Size ft <sup>2</sup> (m <sup>2</sup> )	Resistance Ohms
QUICKNET-010-1	10 (0.9)	120
QUICKNET-020-1	20 (1.9)	60
QUICKNET-030-1	30 (2.8)	40
QUICKNET-040-1	40 (3.7)	30
QUICKNET-050-1	50 (4.6)	24
QUICKNET-060-1	60 (5.6)	20
QUICKNET-070-1	70 (6.5)	17
QUICKNET-080-1	80 (7.4)	15
QUICKNET-090-1	90 (8.4)	13
QUICKNET-100-1	100 (9.3)	12

**240 V QuickNet Mats with thermostat (and without thermostat)**

Catalog Number	Size ft <sup>2</sup> (m <sup>2</sup> )	Resistance Ohms
QUICKNET-050-2 (-050X-2)	50 (4.6)	96
QUICKNET-060-2 (-060X-2)	60 (5.6)	80
QUICKNET-080-2 (-080X-2)	80 (7.4)	60
QUICKNET-100-2 (-100X-2)	100 (9.3)	48

**QuickNet-RK Installation Instructions****QuickNet-RK Cable Repair Commissioning Record (retain this record)****Installer**

Date of commissioning:	Company:
Name of installer:	
Street:	
City:	Postal code:
Phone (office):	Phone (mobile):
Fax:	Email:
Website:	

**Project data**

Customer name:	
Street:	
City:	Postal code:
Sub floor type: <input type="checkbox"/> Wood <input type="checkbox"/> Concrete	Floor covering: <input type="checkbox"/> Ceramic tile <input type="checkbox"/> Natural stone
Room type: <input type="checkbox"/> Kitchen <input type="checkbox"/> Bathroom <input type="checkbox"/> Entryway <input type="checkbox"/> Other:	Rated voltage: <input type="checkbox"/> 120 V <input type="checkbox"/> 240 V

**Recorded value**

<b>QuickNet mat</b>	Catalog number:
	Batch date (from box or cord label):
<b>Insulation resistance</b>	Before embedding in mortar*: (KΩ)
	After embedding in mortar*: (KΩ)
	After floor covering*: (KΩ)
<b>Heating cable resistance</b>	Before embedding in mortar*: (Ω)
	After embedding in mortar*: (Ω)
	After floor covering*: (Ω)
<b>Sensor resistance</b>	Before embedding in mortar*: (KΩ)
	After embedding in mortar*: (KΩ)
	After floor covering*: (KΩ)

\* Refer to QuickNet Installation Manual (H57704) for further installation and testing details. Available online at [www.tycothermal.com](http://www.tycothermal.com).

**Installer:** Please leave this record with homeowner.

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